



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,929	08/20/2003	Masayuki Endo	60188-634	5375

7590 03/10/2005
Jack Q. Lever, Jr.
McDERMOTT, WILL & EMERY
600 Thirteenth Street, N.W.
Washington, DC 20005-3096

EXAMINER

HOANG, QUOC DINH

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,929	ENDO ET AL.	
	Examiner	Art Unit	
	Quoc D. Hoang	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-15 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 12 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8-03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-11, 13-15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art in view of Hayase et al (U.S. Pat No. 5,580,702) ("Hayase").

Regarding claims 1-3, 5-10, 13, 14, 17 and 18, Applicants' Admitted Prior Art teaches a pattern formation method comprising the steps of: forming a resist film 2 made from a chemically amplified resist material; forming, on said resist film, a solution including water 3A or perfluoropolymer 3B ; performing pattern exposure by selectively irradiating said resist film 2; and forming a resist pattern by developing said resist film 2 after the pattern exposure (see page 1 line 4 through 4, line 5 and Figs 8-9).

Applicants' Admitted Prior Art does not teach the solution including an acid or a water-soluble film including an acid on the resist film.

However, Hayase teaches a solution of an acidic water-soluble polymer, or a polymer layer, formed on the resist film, then the resist film is patterned-exposed by an KrF laser. (see col. 18 lines 15-32, and Example 25, and Fig. 1). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the solution of an acidic water-soluble polymer, or a polymer layer teaching of Hayase with Applicants' Admitted

Art Unit: 2818

Prior Art's solution (including water or perfluoropolymer) , because it would have improved the shape of resist pattern as taught by Hayase, column 15, lines 1-5, and Figs. 1-2.

Regarding claims 4 and 11, Hayase teaches wherein said acid generator is an onium salt (col. 11, lines 15-40, sulfo group).

Regarding claims 8 and 15, Hayase teaches wherein said acid is carboxylic acid (col. 11, lines 15-40).

Regarding claim 19, Hayase teaches wherein said acid polymer is polyacrylic acid or polystyrene sulfonic acid (col. 11, lines 15-40).

Allowable Subject Matter

3. Claims 12, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: Claims 12 and 16 recite, inter alia, wherein said water-soluble film is a polyvinyl alcohol film or polyvinyl pyrrolidone film. The art of record does not disclose or anticipate the limitation in combination with other claim element nor would it be obvious to modify the art of record so as to form a device including the above limitation.


5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (571) 272-1780. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers of the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Quoc Hoang 
Patent examiner/AU 2818


David Nelms
Supervisory Patent Examiner
Technology Center 2800